REMARKS

This Amendment After Final Rejection is submitted in response to the outstanding final Office Action, dated August 18, 2005. Claims 11-24 and 27 were withdrawn from consideration due to a restriction requirement. Consequently, claims 1-10, 25, and 26 are pending. In this response, Applicant proposes to amend claims 1, 25, and 26. No additional fee is due.

This amendment is submitted pursuant to 37 CFR §1.116 and should be entered. The Amendment places all of the pending claims, i.e., claims 1-10, 25, and 26, in a form that is believed allowable, and, in any event, in a better form for appeal. It is believed that examination of the pending claims as amended, which are consistent with the previous record herein, will not place any substantial burden on the Examiner. In any case, a Request for Continued Examination is being submitted herewith.

In the final Office Action, the Examiner rejected claims 1, 2, 7, 8, 25, and 26 under 35 U.S.C. §102(e) as being anticipated by Noguchi (United States Patent Number 6,611,939 B1), and rejected claims 3, 4, 9, and 10 under 35 USC §103(a) as being unpatentable over Noguchi in view of Cameron (United States Patent Number 5,099,482 A). The Examiner has indicated that claims 5 and 6 would be allowable if rewritten in independent form including all of the limitations of the base claims.

Independent Claims 1, 25 and 26

Independent claims 1, 25, and 26 were rejected under 35 U.S.C. §102(e) as being anticipated by Noguchi. In particular, the Examiner asserts that Noguchi teaches performing error correction in a reduced power mode...(...the abstract in Noguchi teaches that error correction is terminated to reduce power consumption). In the Response to Arguments section of the final Office Action, the Examiner asserts that Noguchi teaches "'reducing the power consumption in the error correction processing means' by reducing the number of iterations in the iterative decoding process means."

Applicant notes that, as the Examiner acknowledges, Noguchi teaches that error correction is ***terminated*** to reduce power consumption (see, col. 3, lines 12-25; col. 5, lines 54-62; col. 9, lines 18-40 and 54-60). Noguchi teaches, for example, that,

> further, the clock signal which is supplied to the data error correction device is stopped *during a period after the error correction*

> *processing is terminated* when the decoding has been repeated less than the predetermined number of times, till the iterative decoding for the next data is started. Therefore, the power consumption in the data error correction device can be further reduced.
> (Col. 9, lines 54-60; emphasis added.)

Noguchi teaches to ***terminate*** *error correction and, as a result, reduces power consumption*; the present disclosure teaches to ***perform*** *error correction in a reduced power mode*. The specific language of col. 9, lines 54-60, controls over the general language cited by the Examiner at col. 4, lines 61-67. Thus, a person of ordinary skill in the art would understand Noguchi as teaching to ***terminate*** *error correction to reduce power consumption.* The present disclosure teaches to ***perform*** *error correction in a reduced power mode*. Independent claims 1, 25, and 16 have been amended to emphasize that the reduced power mode *consumes less power in a given interval of time relative to a normal operating mode.* Support for this amendment can be found on page 2, lines 15-18; page 13, lines 13-17; page 14, lines 12-18; page 15, lines 23-27; and page 21, lines 17-30, of the originally filed specification.

Thus, Noguchi does not disclose or suggest wherein said reduced power mode consumes less power in a given interval of time relative to a normal operating mode, as required by independent claims 1, 25, and 26, as amended.

<u>Additional Cited References</u>

Cameron was also cited by the Examiner for its disclosure of the use of the particular elements of a decoder for Reed-Solomon codes and how an uncorrectable error is determined from intermediate polynomials. Applicant notes that Cameron is directed to determining whether a received message that has been Reed-Solomon encoded is correctable by Euclid's algorithm. Cameron does not address the issue of performing error correction in a reduced power mode.

Thus, Cameron does not disclose or suggest wherein said reduced power mode consumes less power in a given interval of time relative to a normal operating mode, as required by independent claims 1, 25, and 26, as amended.

Claims 3, 4, 9 and 10

Claims 3, 4, 9, and 10 were rejected under 35 USC §103(a) as being unpatentable over Noguchi in view of Cameron. The Examiner acknowledges that Noguchi does not explicitly teach the specific use of the particular elements of a decoder for Reed-Solomon codes nor does Noguchi teach how an uncorrectable error is determined, but asserts that Cameron discloses that the test for uncorrectable errors comprises determining if the degree of the Error Locator Polynomial and the degree of the Error Magnitude Polynomial are less than predetermined values.

Applicant notes that claim 3 requires providing a plurality of intermediate polynomials, and wherein the step of reducing power consumption in the error correction system when the actual number of errors is less than the maximum error correction capability further comprises the step of determining *if a degree of at least one of the intermediate polynomials is less than a predetermined degree* and claim 4 requires wherein one intermediate polynomial is a *first error evaluator polynomial R(x),* wherein one intermediate polynomial is a *first error locator polynomial F(x),* wherein $R^{(r+1)}(x) = F^{(r+1)}(x) \cdot S(x) \bmod x^{2t}$, wherein r is a number of iterations, $S(x)$ is a syndrome polynomial, and t is a number of errors capable of being corrected, wherein one intermediate polynomial is a second error evaluator polynomial *Q(x)*, wherein one intermediate polynomial is a *second error locator polynomial G(x),* wherein $Q^{(r+1)}(x) = G^{(r+1)}(x) \cdot S(x) \bmod x^{2t}$, wherein the step of determining if a degree of at least one of the intermediate polynomials is less than a predetermined degree further comprises the step of determining *if a degree of either R(x) or Q(x) is less than a predetermined degree, wherein R(x) and F(x) are valid when a degree of R(x) is less than the predetermined degree, and wherein Q(x) and G(x) are valid when a degree of Q(x) is less than the predetermined degree.* Claims 9 requires wherein the method further comprises the steps of *providing a key equation solving device in the decoder*, and *providing a plurality of syndrome generators*, each of the syndrome generators determining one of the syndromes, *wherein the key equation solving device is coupled to each of the syndrome generators*, and wherein the step of reducing power consumption of the decoder of the error correction system when all syndromes have the predetermined value

further comprises the step of *not enabling the key equation solving device when all of the syndromes have the predetermined value* and claim 10 requires calculating at least one error polynomial when at least one syndrome *does not have the predetermined value.*

Applicant could find no disclosure or suggestion by Cameron of these limitations in the cited prior art. In particular, Cameron does ***not*** disclose or suggest determining *if a degree of at least one of the intermediate polynomials is less than a predetermined degree,* does ***not*** disclose or suggest wherein one intermediate polynomial is a *first error evaluator polynomial R(x),* wherein one intermediate polynomial is a *first error locator polynomial F(x),* wherein $R^{(r+1)}(x) = F^{(r+1)}(x) \cdot S(x) \bmod x^{2t}$, wherein r is a number of iterations, $S(x)$ is a syndrome polynomial, and t is a number of errors capable of being corrected, wherein one intermediate polynomial is a second error evaluator polynomial *Q(x),* wherein one intermediate polynomial is a *second error locator polynomial G(x),* wherein $Q^{(r+1)}(x) = G^{(r+1)}(x) \cdot S(x) \bmod x^{2t}$, wherein the step of determining if a degree of at least one of the intermediate polynomials is less than a predetermined degree further comprises the step of *determining if a degree of either R(x) or Q(x) is less than a predetermined degree, wherein R(x) and F(x) are valid when a degree of R(x) is less than the predetermined degree, and wherein Q(x) and G(x) are valid when a degree of Q(x) is less than the predetermined degree.* Cameron also does ***not*** disclose or suggest *providing a key equation solving device in the decoder*, and *providing a plurality of syndrome generators,* each of the syndrome generators determining one of the syndromes, *wherein the key equation solving device is coupled to each of the syndrome generators*, and wherein the step of reducing power consumption of the decoder of the error correction system when all syndromes have the predetermined value further comprises the step of *not enabling the key equation solving device when all of the syndromes have the predetermined value* and does ***not*** disclose or suggest calculating at least one error polynomial when at least one syndrome *does not have the predetermined value.*

Thus, Noguchi and Cameron, alone or in combination, do not disclose or suggest providing a plurality of intermediate polynomials, and wherein the step of

reducing power consumption in the error correction system when the actual number of errors is less than the maximum error correction capability further comprises the step of determining if a degree of at least one of the intermediate polynomials is less than a predetermined degree, as required by claim 3, do not disclose or suggest wherein one intermediate polynomial is a first error evaluator polynomial *R(x)*, wherein one intermediate polynomial is a first error locator polynomial *F(x)*, wherein $R^{(r+1)}(x) = F^{(r+1)}(x) \cdot S(x) \bmod x^{2t}$, wherein r is a number of iterations, $S(x)$ is a syndrome polynomial, and t is a number of errors capable of being corrected, wherein one intermediate polynomial is a second error evaluator polynomial *Q(x)*, wherein one intermediate polynomial is a second error locator polynomial *G(x)*, wherein $Q^{(r+1)}(x) = G^{(r+1)}(x) \cdot S(x) \bmod x^{2t}$, wherein the step of determining if a degree of at least one of the intermediate polynomials is less than a predetermined degree further comprises the step of determining if a degree of either *R(x)* or *Q(x)* is less than a predetermined degree, wherein *R(x)* and *F(x)* are valid when a degree of *R(x)* is less than the predetermined degree, and wherein *Q(x)* and *G(x)* are valid when a degree of *Q(x)* is less than the predetermined degree, as required by claim 4, do not disclose or suggest wherein the method further comprises the steps of providing a key equation solving device in the decoder, and providing a plurality of syndrome generators, each of the syndrome generators determining one of the syndromes, wherein the key equation solving device is coupled to each of the syndrome generators, and wherein the step of reducing power consumption of the decoder of the error correction system when all syndromes have the predetermined value further comprises the step of not enabling the key equation solving device when all of the syndromes have the predetermined value, as required by claim 9, and do not disclose or suggest calculating at least one error polynomial when at least one syndrome does not have the predetermined value, as required by claim 10.

Claim 7

Claim 7 was rejected under 35 U.S.C. §102(e) as being anticipated by Noguchi. In particular, the Examiner asserts that flagging the B1 decoding using the SYN(B1) flag is a means for determining if all the syndromes have the predetermined value of zero or not, and that Noguchi teaches that whenever SYN(B1)=0 and

UNC(A1)=0, correction is terminated thereby reducing power (FIG.2).

Claims 7 requires determining a plurality of syndromes; determining if all of the syndromes have a predetermined value; and *reducing power consumption of the decoder of the error correction system when all of the syndromes have the predetermined value*. Applicant could find no disclosure or suggestion by Cameron of reducing power consumption of the decoder of the error correction system *when all of the syndromes have the predetermined value*.

Thus, Noguchi and Cameron, alone or in combination, do not disclose or suggest determining a plurality of syndromes; determining if all of the syndromes have a predetermined value; and reducing power consumption of the decoder of the error correction system when all of the syndromes have the predetermined value, as required by claim 7.

Conclusion

The rejections of the cited claims under section 102 and 103 in view of Noguchi and Cameron, alone or in any combination, are therefore believed to be improper and should be withdrawn. The remaining rejected dependent claims are believed allowable for at least the reasons identified above with respect to the independent claims. The Examiner has already indicated that claims 5 and 6 would be allowable if rewritten in independent form including all of the limitations of the base claims.

The Examiner's attention to this matter is appreciated.

Respectfully,

Date: December 19, 2005

Kevin M. Mason
Attorney for Applicant(s)
Reg. No. 36,597
Ryan, Mason & Lewis, LLP
1300 Post Road, Suite 205
Fairfield, CT 06824
(203) 255-6560